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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/084,369 | 02/28/2002 | Katsunori Hirase | 020199 | 6286 |
| 23850 | 7590 | 01/24/2005 | EXAMINER | |
| ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006 | | | SETH, MANAV | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2625 | |

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/084,369 | | HIRASE, KATSUNORI | |
| | Examiner | | Art Unit | |
| | Manav Seth | | 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/28/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>09/21/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to because:

In Figure 6, step S204 fails to provide the details of the **type of the block** to be considered with respect to the condition “which block?”. Correction is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(e) as being unpatentable by Wu, U.S. Patent No. 6,584,154.

Regarding **Claim 1**, Wu discloses:

- an image reproduction portion receiving said compressed image data to generate reproduced image data where image reproduction portion comprises of a variable-length decoder (VLD) 2, an inverse quantizer (IQ) 4, a resolution converting IDCT processor (RCIDCT) 6 and an adder 8 (figure 1, column 7, lines 1-25).
- a data compressor 10 (an orthogonal transform and compression portion) which compresses the output picture signal S8 from said image reproduction portion (column 7, lines 39-41). Wu further discloses the use of orthogonal transform such as Hadamard transform for data

compression on each block (column 7, lines 1-3; column 17, lines 1-11) and further provides the details of data compression which comprise rounding of values of blocks using a predetermined threshold level (column 17, lines 23-56) and further provides the adjustment or switching of threshold values (column 17, 59-71).

- A memory 12 (storage) receiving an output from said orthogonal transform and compression portion for storing the reference image data for predictive coding (column 7, lines 42-44; column 2, lines 25-40).

Claim 2 recites "the apparatus according to claim 1, wherein said orthogonal transform and compression portion effects Hadamard transform as said orthogonal transform". Wu discloses the use of orthogonal transform such as Hadamard transform for data compression on each block (column 7, lines 1-3; column 17, lines 1-11).

Claim 3 recites "the apparatus according to the claim 1, wherein said orthogonal transform and compression portion switches for each said predetermined data transform block a level of a threshold value for a rounding operation effected after said orthogonal transform". Wu discloses the transform processor 80 which performs a Hadamard transform on each block and then coding unit 82 receives the transformed block for further providing the rounding operations using threshold values (column 17, lines 25-62).

Claim 4 recites “the apparatus according to claim 3, wherein said orthogonal transform and compression portion effects Hadamard transform as said orthogonal transform”. Claim 4 has been analyzed and rejected as per claim 3 and 2.

Claim 7 recites the method to be performed on the apparatus as recited in claim 1. Claim 7 additionally recites the limitation “generating from said second reproduced image data stored in said reference image memory said reference image data corresponding to said first reproduced image data”. Wu further discloses generating of the second reproduced image data S16 from memory 12 by decompressing it by decompressor 14 and then sending it to the adder 8 through motion compensator, where it is added to the first picture signal S8 to generate the output picture signal S8 which is the current picture signal (figure 1; column 7, lines 37-66). All other limitations in claim 7 had been analyzed and rejected as per claim 1.

Claims 8-10 have been similarly analyzed and rejected as per claims 7 and 2-4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, U.S. Patent No. 6,584,154 as applied to claim 1 above, and further in view of Saito, U.S. Patent No. 5,045,925.

Regarding claim 5, Wu discloses the said compressed image data includes a luminance signal component and a color difference signal component (column 18, lines 40-43) and further discloses the encoding and compression of these luminance and color difference components using compressor 10, which uses Hadamard transformation as explained in the rejection of claim 1 (column 18, lines 40-57; column 17, lines 1-12).

Wu does teach the encoding of color-difference components but does not teach truncation for AC component of the color-difference. However, Saito discloses the truncation of the AC component where the truncation is performed after Hadamard transformation is applied to the block (column 3, lines 39-43 and lines 28-30).

Therefore, it is obvious for one skilled in the art at the time of invention was made to include the step of truncating AC component by Saito in the invention of Wu. One would have been motivated to include the step of truncating AC component by Saito in the invention of Wu because both references are directed towards the field of encoding image signals using orthogonal transformation and Saito further provides the truncation of AC components because the lower-frequency component is more important as data

than the higher-frequency components to retain the quality compressed data and this would increase the compression ratio (See Saito, column 4, lines 1-8).

Claim 6 recites "the apparatus according to claim 5, wherein said orthogonal transform and compression portion effects Hadamard transform as said orthogonal transform". Claim 6 has been analyzed and rejected as per claim 5.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Suga, U.S. Patent No. 6,222,943 discloses image processing apparatus in which variable-length compression is performed by orthogonally transforming the input image data and further provides the concept of AC component truncation.
- Kanota et al., U.S. Patent No. 5,790,747 discloses a digital video signal recording apparatus further disclosing compression and AC component truncation.
- Lei, U.S. Patent No. 6,130,911 discloses a method and apparatus for compressing reference frames in an interframe video codec.
- Lei, U.S. Patent No. 6,272,180 discloses compression and decompression of reference frames in a video.


- Saito et al., U.S. Patent No. 5,184,229 discloses compression coding device and expansion decoding device for picture signal.
- Ran et al., U.S. Patent No. 5,644,361 discloses subsampled frame storage technique for reduced memory size.
- Canfield et al., U.S. Patent No. 5,847,762 discloses a MPEG system which decompresses and then recompresses MPEG video data before storing said recompressed MPEG video data into memory.
- Nakajima et al., U.S. Patent No. 6,243,432 discloses apparatus for decoding coded video data with reduced memory size.
- Canfield et al., U.S. Patent No. 5,825,424 discloses a MPEG system which decompresses and recompresses image data before storing image data in a memory and in accordance with a resolution of a display device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (703) 306-4117. The examiner can normally be reached on Monday to Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manav Seth
Art Unit 2625
October 19, 2004


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